<u>REMARKS</u>

In response to the Office Action mailed on March 24, 2004, Applicants respectfully request reconsideration. Claims 1-35 are now pending in this Application. Claims 1, 14, 29, and 32-35 are independent claims and the remaining claims are dependent claims. In this Amendment, claims 1, 2, 7, 8, 13, 15-22, 25, 27-31 and 33 have been amended, and claims 34 and 35 been added. Applicants believe that the claims as presented are in condition for allowance. A notice to this affect is respectfully requested.

The claim amendments have been made for purposes of improved clarity and consistency, and do not raise any new substantive issues.

In the Office Action, various claims are objected to under 37 C.F.R. §1.75, apparently for failing to separate elements by line indentations. Several claims have been amended where believed necessary. It is believed that all the claims now comply with this provision of 37 C.F.R. §1.75.

In the Office Action, claims 13 and 27 are rejected under 35 U.S.C. § 112, 2nd para., for their recitation of the Oracle database. These claims have been amended to delete the references to Oracle.

In the Office Action, claims 1-33 are rejected under 35 U.S.C. §103 as being obvious in view of the Background of the present application (hereinafter "Background") and Pomerantz, U.S. Patent No. 6,567,953 (hereinafter "Pomerantz"). This rejection is respectfully traversed.

Claim 1 recites a method for detecting errors in data received at a data storage system to be stored within the data storage system. The claimed method includes (1) receiving application error checking information at the data storage system, (2) generating data storage error checking information on the data, (3) comparing the application error checking information, in a format that is compatible with the data storage error checking information, to the data storage error checking information, to determine if the data contains an error upon receipt, (4) if the data contains an error, providing an indication of the error, and

(5) if the data does not contain an error, storing the data within the data storage system.

The Background describes certain operations of the Oracle database application, in particular operations directed to error detection. Database data is organized into application data blocks which are written to and read from storage. When an application data block is to be written to storage, Oracle generates a checksum and includes it with the data for writing to storage. When a data block is read from storage, Oracle computes a checksum from the data portion of the application data block and compares the computed checksum with the checksum that was stored as part of the application data block. If the checksums match, the data is accepted as being error free. If the checksums do not match, then Oracle generates an error indication to the user indicating that the data has an error and may not be usable.

Pomerantz describes a method of carrying out a "data in burst" (i.e., a read request) from a storage device to a host. Storage control logic 140 receives a cyclic redundancy check (CRC) value from the storage device, and also calculates a CRC value during the transfer. At the end of the transfer, which may be a "burst" constituting a part of a larger data block, the control logic 140 compares the received and calculated CRC values to determine whether the data has been transferred successfully. Pomerantz is concerned with the problem of validating the correct transfer of read data when it is obtained by interrupting a longer transfer. Pomerantz is not concerned with identifying errors in data that is to be written to storage.

Although the Office Action states that Pomerantz teaches "data compatibility techniques", it is not understood what "techniques" in Pomerantz are being referred to. In any event, in Pomerantz the calculated and received CRC values are not described as being of incompatible formats, nor does Pomerantz show any conversion of CRC values from one format to another. In fact, it appears that direct comparison of the CRC values as received and calculated is exactly what occurs in Pomerantz.

It is respectfully submitted that the Background and Pomerantz do not render claim 1 obvious under 35 U.S.C. § 103. Neither the Background nor Pomerantz teaches or suggests a method as recited in claim 1 for detecting errors in data received at a data storage system to be stored within the data storage system, wherein the method includes (1) receiving application error checking information received at the data storage system, (2) generating data storage error checking information on the data, and (3) comparing the application error checking information, in a format that is compatible with the data storage error checking information, to the data storage error checking information to determine if the data contains an error upon receipt.

The Background describes only the generating of a checksum on application data and storing the checksum with the data, and upon a read of the data comparing the checksum with a checksum that is computed from the data <u>at the time of the read</u>. There is no description of generating data storage error checking information on data <u>to be stored</u> (i.e., as part of storing the data in a data storage system), nor comparing any such data storage error information with application error checking information, as recited in claim 1.

Pomerantz describes only receiving and generating CRC values during a read request. There is no description of generating data storage error checking information on data <u>to be stored</u> (i.e., as part of storing the data in a data storage system) and comparing the data storage error information with application error checking information that is received at the data storage system, as recited in claim 1. In fact, Pomerantz has no description of anything that can be characterized as "application error checking information", because the CRC values appearing in Pomerantz are all created only at the hardware level and not by any application program such as a database program. Thus Pomerantz, like the Background, fails to teach the claimed features of comparing application error checking information, in a format that is compatible with the data storage error checking information, to the data storage error checking information to determine if data to be written to storage contains an error upon receipt at the data storage system.

Because the Background and Pomerantz, both alone and in combination, fail to teach or suggest the above-described features of claim 1, they cannot render claim 1 obvious under 35 U.S.C. § 103.

It will be appreciated that the remaining claims include, either directly or indirectly, the same features of claim 1 discussed above, and therefore the above discussion of the Background and Pomerantz is applicable to the patentability of the remaining claims as well.

Additionally, notwithstanding the assertions in the Office Action with respect to claims 2-14, for example, neither the Background nor Pomerantz is seen to teach or suggest the step in claim 3 of generating of N-byte data storage error checking information by exclusive-OR'ing all N-byte checksum values for multiple portions of data that constitute an application data block; the feature of claim 4 of converting M-byte application error checking information into an N-byte value to permit comparison with N-byte data storage error checking information; the feature of claim 5 of extracting application error checking information from a portion of the data being stored; the feature of claim 7 of conditionally converting application error checking information into a format that is comparable with the data storage error checking information before comparing the two sets of information; nor several other features recited in claims 8-14. Thus these claims are also not seen to obvious in view of the Background and Pomerantz, because of the failure to teach or suggest the claimed features.

In view of the foregoing, it is respectfully submitted that originally filed claims 1-33, as amended herein for clarity, are allowable in view of the Background and Pomerantz. Favorable action is respectfully requested.

New claims 34-35 are similar to claims 1 and 15 respectively, while including combinations of features drawn from the dependent claims. In particular, it will be observed that claim 34, for example, includes receiving the data as multiple portions of data that constitute an application data block, as recited in claim 2; the data portion error checking information having an N-byte checksum format, as recited in claim 3; and the application error checking information having an M-byte checksum format and converting the application

error checking information into a format that is the same as the format of the data storage error checking information, similar to claim 4. The above remarks concerning the Background and Pomerantz are seen to be applicable to new claims 34-35 as well. In addition, neither the Background nor Pomerantz is seen to teach or suggest the particular combination of additional features recited in claims 34-35, and therefore these claims are seen to be even more distinct. It is therefore believed that new claims 34-35 are likewise allowable.

In view of the foregoing, it is believed that all the claims of this application are allowable. Favorable action is respectfully requested. The Examiner is urged to telephone Applicants' attorney to resolve any issues that may be remaining.

There is no fee required. If the U.S. Patent and Trademark Office deems a fee necessary, this fee may be charged to the account of the undersigned, Deposit Account No. 50-0901.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned collect at (508) 366-9600, in Westborough, Massachusetts.

Respectfully submitted,

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